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Identification of indicator species of zooplankton organisms by COI gene fragment for estimation of ecological state of a water body

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Abstract

© 2016, International Journal of Pharmacy and Technology. All rights reserved.Nowadays various methods are used for estimation of ecological state of water bodies; the method of bioindication is one of them. Identification of indicator species of aquatic organisms via the visual method with the aid of a microscope may be performed with a high degree of certainty only by highly experienced zoologists. This method requires deep knowledge of morphological description of every organism, which includes approximately from 15 to 25 characteristics, thus the method greatly depends on subjectiveness of an investigator. At the same time the known methods of molecular genetics are used for determination of the taxonomy of organisms but have not been still used in ecological investigations of water bodies. The method of DNA barcoding which was used by us for identification of indicator species of zooplankton in freshwater bodies in the city of Kazan is one of such molecular methods. The experiment resulted in sequence analysis of the four base sequences of COI gene fragments which were added to the GenBank international database under the following unique numbers: Scapholeberismucronata - HQ336794 (658 bp), Moinamicrura - HQ336797 (658 bp), Mesocyclopsleuckarti - HQ336795 (658 bp), Brachionuscalyciflorus - HQ336793 (660 bp). The estimation of three lakes in Kazan city is based on identification of indicator species of zooplankton by COI gene.

Keywords

COI gene, DNA barcoding, Ecological state of water bodies, Zooplankton